

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
29 December 2004 (29.12.2004)

PCT

(10) International Publication Number
WO 2004/113418 A3

(51) International Patent Classification⁷: **C08G 81/02**,
83/00, 59/34, C08F 8/08

(21) International Application Number:
PCT/CA2004/000924

(22) International Filing Date: 21 June 2004 (21.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/479,835 20 June 2003 (20.06.2003) US

(71) Applicant (for all designated States except US): **THE UNIVERSITY OF WATERLOO** [CA/CA]; Technology Transfer & Licensing, Office of Research, Needles Hall, Waterloo, Ontario N2L 3G1 (CA).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **GAUTHIER, Mario** [CA/CA]; 503-547 Belmont Avenue West, Kitchener, Ontario N2M 5G9 (CA). **YUAN, Zhongshun** [CA/CA]; 221-104 Seagram Drive, Waterloo, Ontario N2L 3B8 (CA).

(74) Agents: **CHARI, Santosh, K.** et al.; Blake, Cassels & Graydon LLP, 199 Bay Street, Suite 2800, Box 25, Commerce Court West, Toronto, Ontario M5L 1A9 (CA).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(88) Date of publication of the international search report:
22 September 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHODS FOR SYNTHESIS OF GRAFT POLYMERS

(57) Abstract: A process for the synthesis of arborescent polymers comprises epoxidation of a first polymer and grafting thereto a second polymer having groups reactive to the epoxide groups on the first polymer. The epoxidation and grafting steps can be repeated. In an additional embodiment, the present invention provides a one-pot method for the synthesis of arborescent polymers. In a reaction pot, a first polymer is copolymerized and then reacted with an activating compound in order to generate a polyfunctional macroinitiator. Monomers are then added to the reaction pot, the monomers having functional groups reactive towards reactive sites on the first polymer.

WO 2004/113418 A3